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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,640	03/09/2004	Daniel J. C. Herr	5347-204CT	2214

20792 7590 12/01/2004  
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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT PAPER NUMBER

1756

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/796,640

Applicant(s)

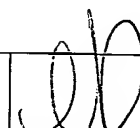
HERR ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/09/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**The claims should indicate clearly that the interferometric image is at the image place (photosensitive layer) and that the reflective surface is not holographic.**

**It should be made clear if the process embraces mere interferometrically measurement/testing of the surface or requires prior knowledge/design of the interference pattern projected (ie a particular design is desired)**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4 Claims 23,44 and 66 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

This limitation appears in claims 12, 34 and 55 respectively

5 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7 Claims 12,13,18,21,29,34,39,40,42,44,55,61,62,64 and 66 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Hochberg '116.

Hochberg '116 teaches with respect to figures 3A and 3B, the recording of holographic mirrors (gratings) in a photosensitive layer, where a portion of the beam is reflected off the mirror (62) and the remainder acts as a reference directly irradiating the recording layer (70). Note that plural holograms are recorded on the same medium.

8 Claims 1,2,5-7,9-13,16,17,19,23,24,27-29,33,34,37,38,40,44,45,48-50,54-55,58-60,62 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joy et al., "Advanced

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SEM Imaging", in Characterization and Metrology for ULSI Technology", 1998 international Conference, (03/1998), AIP conference proceedings 449, pages 653-666, in view of Spence et al., "Low Energy Point Reflection Electron Microscopy", Surface Review and Letters, Vol. 4(3), pp. 577-587 (1997).

Joy et al., "Advanced SEM Imaging", in Characterization and Metrology for ULSI Technology", 1998 international Conference, (03/1998), AIP conference proceedings 449, pages 653-666 teaches forward scattering holography with respect to figure 8 and the text on page 659. The particular detectors used are not disclosed.

Spence et al., "Low Energy Point Reflection Electron Microscopy", Surface Review and Letters, Vol. 4(3), pp. 577-587 (1997) describes the use of a field emitter tip placed adjacent to a stepped surface with respect to figure 7 and describes the resulting Fresnel diffraction image emerging from this. The measurements are done using microchannel plates (MCP) as shown in figures 1 and 3.

It would have been obvious to one skilled in the art to modify the process of Joy et al., "Advanced SEM Imaging", in Characterization and Metrology for ULSI Technology", 1998 international Conference, (03/1998), AIP conference proceedings 449, pages 653-666 by using a microchannel plate detection means such as that taught by Spence et al., "Low Energy Point Reflection Electron Microscopy", Surface Review and Letters, Vol. 4(3), pp. 577-587 (1997) with a reasonable expectation of capturing/resolving the desired diffraction image based upon the similarity of layout for the electron emitter tip and the scattering/reflection surface and the disclosure of measuring diffraction patterns in Spence et al., "Low Energy Point Reflection Electron Microscopy", Surface Review and Letters, Vol. 4(3), pp. 577-587 (1997).

9 Claims 1-7,9-19,23-29,33-38,40,44-50,54-60,62 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joy et al., "Advanced SEM Imaging", in Characterization and Metrology for ULSI Technology", 1998 international Conference, (03/1998), AIP conference proceedings 449, pages 653-666, in view of Elliott, "Integrated Circuit Manufacturing Technology", pp. 76-81 (1982) or Tetsuo et al., JP 11-329944.

Elliott, "Integrated Circuit Manufacturing Technology", pp. 76-81 (1982) establishes that electron beams resists are old and well known in the art.

Tetsuo et al., JP 11-329944 teaches the use of silicon layers, which are able to be selectively oxidized as image detectors for electron beams.

It would have been obvious to one skilled in the art to modify the process of Joy et al., "Advanced SEM Imaging", in Characterization and Metrology for ULSI Technology", 1998 international Conference, (03/1998), AIP conference proceedings 449, pages 653-666 by using photoresists or oxidizable silicon layers as detection means as taught by Elliott, "Integrated Circuit Manufacturing Technology", pp. 76-81 (1982) or Tetsuo et al., JP 11-329944 with a reasonable expectation of capturing/resolving the desired diffraction image based upon the disclosure of the use of these means in the art for detection of electrons.

10 The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

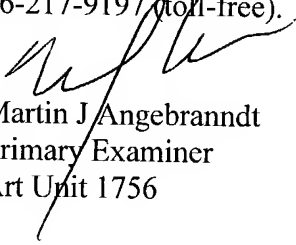
11 Claims 1-66 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,730,443. Although the conflicting claims are not identical, they are not patentably distinct from each other because the combination of the irradiation from the reflected surface and the direct irradiation from the source would generate holographic images at the image plane and this would have been obvious to one skilled in the art.

12 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranndt  
Primary Examiner  
Art Unit 1756

11/29/2004